DOCUMENT RESUME

ED 333 601 EC 300 306

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TITLE Adaptive Behavior as a Unique Variable in the Assessment of Gifted Children.
PUB DATE Apr 91
NOTE 18p.; Paper presented at the Annual Meeting of the American Education Research Association (72nd, Chicago, IL, April 3-7, 1991).
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Adjustment (to Environment); Behavior Rating Scales; *Daily Living Skills; Elementary Secondary Education; Evaluation Methods; *Gifted; *Intelligence Quotient; Preschool Education; Student Evaluation
IDENTIFIERS Vineland Adaptive Behavior Scales

ABSTRACT

This study examined the application of adaptive behavior assessment to a gifted population. It addressed the following questions: (1) "What is the nature of adaptive behavior in gifted children?"; (2) "With which adaptive behaviors does intelligence quotient correlate?"; (3) Are there adaptive behaviors that distinguish the above IQ groups from each other?". The Vineland Adaptive Behavior Scale was administered to 168 children, ages 2 to 16, who were grouped into four groups based on IQ scores and ranging from average to highly gifted (IQ 148 to 192). Findings suggest that adaptive behavior and IQ are distinct from each other and may be considered unique variables for this population. Results also indicated that the adaptive behavior of highly gifted children may be different from that of other children. Adaptive behavior correlated moderately with IQ for this group but did not correlate significantly with IQ for the other groups. Little in adaptive behavior subdomain scores was predictive of IQ. Findings suggest the value of adaptive behavior assessment as a source of additional information in the evaluation of children of all abilities. (DB)

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ED333601

ADAPTIVE BEHAVIOR AS A UNIQUE VARIABLE IN THE ASSESSMENT OF GIFTED CHILDREN

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Paper presented at the annual meeting of the American Educational Research Association (AERA), Chicago, April, 1991.

EC 300306

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ADAPTIVE BEHAVIOR AS A UNIQUE VARIABLE IN THE ASSESSMENT OF GIFTED CHILDREN

The demand for change in educational assessment procedures is growing as educators increasingly are held accountable for the decisions they make. No longer are traditional IQ tests enough to determine the "fit" of a child to alternative programming options. A multifaceted approach to assessment has taken over. This has necessitated inclusion of a variety of measures to examine the child's whole range of abilities. Among the types of measures being considered are measures of adaptive behavior. Originally a part of the assessment of mentally-handicapped children and adults, such measures are now being evaluated for possible use with other groups.

While earlier studies have examined the nature of adaptive behavior by ability groups (Bruininks, McGrew & Muruyama, 1988; Ilmer, Bruininks & Hill, 1988; McGrew & Bruininks, 1989), most are focused on levels of mental retardation compared with average ability groups. Keith, Fehrmann, Harrison and Pottebaum (1987, cited in McGrew & Bruininks, 1990, p. 57) conducted a study in which they tested adaptive behavior/intelligence models, using the Kaufmann Kaufmann Achievement Battery for Children (Kaufmann & Kaufmann, 1983) and the Vineland Adaptive Behavior Scale (Sparrow, Balla & Cicchetti, 1984). They concluded that intelligence and adaptive behavior are separate constructs, though related. They found a correlation of .39 between the two measures.

Very little research, however, has been done comparing the adaptive behaviors of gifted children with other groups or within levels of giftedness. Because the gifted are distanced as far from what is considered "average" as are the mentally-retarded, it would seem logical that their differences might be as great, as well as their needs. Bruininks, McGrew and Muruyama's study (1988) suggests that adaptive behavior might be in part a function of developmental level. Thus, it could be structured differently not only for differing age groups, but for different ability levels as well. A purpose of this study was to examine the application of adaptive behavior assessment to a gifted population.

For this study, the construct of adaptive behavior was defined as in the Vineland Adaptive Behavior Scale (Sparrow, Balla & Cicchetti, 1984): "the extent to which one performs those daily activities required for personal and social self-sufficiency. Implicit in our definition are three critical elements, namely that adaptive behavior is: (1) age-related...; (2) defined by societal standards...; (3) measured in terms of typical behavior, not ability...;and (4) modifiable." (Cicchetti & Sparrow, 1989, p.2).

From the historical perspective, this definition is generally

consistent with, and exceeds, Edgar Doll's perception of adaptive behavior, which stated it was "the functional ability of the human organism for exercising personal independence and social responsibility." (Doll, 1953, cited in Cicchetti & Sparrow, 1989, p. 2). It also parallels Grossman's definition for the American Association for Mental Deficiency (AAMD): "Adaptive behavior is defined as the effectiveness or degree with which the individual meets the standards of personal independence and social responsibility expected of his age and cultural group" (Grossman, 1977, cited in S. Terrasi & P. W. Airasian, 1989, p. 203).

The original purpose of this study was to examine the differences that exist, if any, between adaptive behaviors of "average-to-high-average" children (IQ 90-131) and those of "gifted" children (IQ 132-plus), using the Stanford-Binet-LM as a yardstick. When it became evident, after several analyses, that a finer breakdown was necessary, the categories were altered to: "average" (IQ 85-116), "high-average-to-mildly-gifted" (IQ 117-132), "moderately gifted"(IQ 133-148), and "highly gifted" (IQ 149 and above). The questions addressed by the study were: (1) What is the nature of adaptive behavior in gifted children? (2) With which adaptive behaviors does IQ correlate? (3) Are there adaptive behaviors that distinguish the above IQ groups from each other?

The Vineland Adaptive Behavior Scale has withstood the test of time as a "third-party-administered instrument" (Sparrow, Balla & Cicchetti, 1985). This method of administration "produces a valid measurement of the day-to-day activities that cannot be adequately measured through direct administration of tasks. This method also allows assessment of individuals who will not or cannot perform on command in a direct administration situation, such as infants, the severely or profoundly retarded, the severely emotionally disturbed, and the physically handicapped." (Sparrow, Balla & Cicchetti, 1985, p. 7). It can be noted that three of these groups include all ranges of intellectual ability.

The Vineland is a revision of Doll's earlier instrument, the Vineland Social Maturity Scale (1953, 1965) and was published in revised form in 1984. It "assesses personal and social sufficiency of individuals from birth to adulthood and is applicable to both handicapped and non-handicapped individuals. [It is structured as] an interview with a person who is familiar with the behavior of the individual being assessed." (Sparrow & Cicchetti, 1988, p. 4). Because it has an open-ended question format, it has the potential for providing more information than the typical rating-scale format of other instruments. It measures behavior in four domains: Communication, Socialization, Daily Living Skills, and Motor Skills. All domains are administered to all age groups (from birth to 18 years, 11 months), except Motor Skills, which is given only to those under six years of age or to motor-delayed individuals.

Test-retest and interrated reliabilities are reported at .95 to .99 and .93 to .99, respectively. Construct validity tests yielded a correlation of .55 with Doll's Vineland Social Maturity Scale, which indicates a moderate relationship, but not one so strong as to suggest duplication (Sparrow & Cicchetti, 1988).

The truly "gifted" intellectual range, defined as an IQ score of 132 and above is two standard deviations above the mean (100) for the Stanford-Binet Scale: Form L-M, and only two points above the cut-off established by Leta Hollingworth, one of the first to study highly gifted individuals (Tannenbaum, 1983). Two standard deviations above the mean represents the top 2% of the population, hardly arguable as representative of extremely high ability.

METHOD

Subjects for this study were 192 children, ages 2-7 to 16-0, who were seen at a University Assessment Center for individual testing. Twenty-four of the sample had Stanford-Binet L-M scores of 116 or below, 50 had scores of 117 to 132, 56 had scores of 133 to 148, and 38 had scores of 148 to 192. The remaining 24 either were given other IQ tests or none. Thus, 168 constituted the final, usable sample. Children are referred to this center by their teachers or pediatrician as being potentially gifted. Analyses in this study were conducted both for the full sample and/or for the four subgroups of children. Secondary analyses included the two extreme groups and also a discriminant analysis examining variables which discriminate between genders. (See Table 2 for a description of the IQ groups.)

Of the subject pool, 45.3% were girls and 54.2% were boys; one case did not report this variable. The mean age was 6-1 years. The mean Binet IQ was 134.6 (s.d.=17.18; range 96-192). Of the sample, 56% had IQ scores of 132 or above. The mean Vineland adaptive behavior standard score was 121.8 (s.d.=16.78; range, 72-155). All children in the sample lived in a metropolitan or suburban area in a western state and came from predominantly middle-class families.

All the children were individually assessed with the Vineland Adaptive Behavior Scale and other measures as well, using standard administration procedures. Data were collected over the period from September, 1985 to May, 1990.

Analyses were conducted using the 4.0 version of SPSS-X. Frequencies, means, standard deviations were computed initially, to address the question: What is the nature of adaptive behavior in gifted children? Then correlations were calculated to examine the adaptive behaviors that correlated with IQ. To address the final question --Are there adaptive behaviors that distinguish

the various IQ groups from each other? -- t-tests and discriminant analyses technics were performed. In addition, regression analyses were performed with the two extreme IQ groups (85-117 and 149-192) to verify the adaptive behaviors that are predictive of IQ.

RESULTS

To understand the abbreviations used for the various domains and subdomains of the Vineland, definitions are given in Table 1. Table 2 describes the sample subsets. Indicated in the descriptive statistics are the means and standard deviations of the subdomain scores for the four IQ groups. (See Table 4.) Subscales in which we see the greatest differences among the groups on mean scores are: SOIR (Range 40.67-43.34), MOF (Range 10.5-20.37) and MOG (Range 12.86-24.97). Standard scores varying the most were COST (Range 111.71-126.92), SOST (Range 15.19-22.35) and ADST (Range 114.04-125.29).

The results of correlational analysis of the Vineland subdomains with IQ and ADST scores are given in Table 3. It can be seen readily that for each of the four groups, there is very little relationship between IQ and the subdomains. This lends support to this paper's underlying hypothesis that adaptive behavior, as measured by the Vineland scales, is a variable distinct from IQ, and adds a different dimension of information to the assessment profile of a child. The data indicate that IQ is significantly related in a negative direction to fine motor skills ($-.61$, $p \leq .05$) and the motor skills standard score ($-.64$, $p \leq .01$) in the lower and upper IQ groups, but not as much in the two middle groups. It also has a significant low-to-moderate relationship to "socialization - interpersonal relationships" ($.31$, $p \leq .05$) and "socialization - coping skills" ($.27$, $p \leq .05$) in the third IQ group (IQ 133-148), and to "communication standard score" ($.44$, $p \leq .01$) in the highest group. The interesting finding on IQ from this analysis is that Stanford-Binet IQ scores have an insignificant and low relationship with adaptive behavior standard scores in the first three IQ groups, but a significant, moderate positive relationship for the "149-plus" IQ group ($.45$, $p \leq .01$).

An investigation of the correlations of variables with "adaptive standard score" reveals that adaptive behavior is related to different variables for different IQ groups. In the 85-116 IQ group it is correlated moderately with "socialization-coping skills". For the 117-132 IQ group it has a moderate relationship with all the socialization scales. In the 133-148 IQ group, adaptive behavior is again correlated mainly with "socialization-coping skills." However, for the highly gifted group, adaptive behavior has a moderate relationship with the two motor areas, the "socialization-coping skills" area and the receptive communication area. For all four IQ groups, adaptive behavior

has a high-moderate-to-strong relationship with the communication standard score (.62-.72), daily living standard score (.72-.86) socialization standard score (.77-.88), and then with motor skills standard score for the upper two groups only (.61-.77). It is expected that the domain standard scores would correlate highly with adaptive behavior, since they are components of it. This, however, suggests that they measure different aspects of it, since they are in the high-moderate range.

Four discriminant function analyses were performed -- two on groups defined by IQ, and two on groups defined by sex, using first the subdomain scores and then the standard scores. The first two -- for groups defined by IQ -- revealed that the three functions that were calculated from the subdomain variables were all insignificant for explaining variance among the groups. The first one -- always the largest contributor --showed a canonical correlation of .3886, explaining only 15% of the variance in the groups. The three functions collectively explained only 29% of the variance.

The results of the discriminant analyses using IQ as a grouping variable are summarized in Table 5. Examination of the group centroids reveals that they are not separated far from each other and, hence, do not distinguish the groups clearly. Classification results indicate correct classification on subdomain variables of 37.5% for Group 1 (chance=.14), 60% for Group 2 (chance=.30), 30.4% for Group 3 (chance=.33) and 39.5% for Group 4 (chance=.23). The overall percent of correct classification was 42.26%, a weak-to-moderate result. For the standard score classification, correct classifications, in order, were: 29.2% (chance=.14), 62.0% (chance=30), 76.8% (chance=33) and 5.3% (chance=.23), with an overall correct classification of 49.4%.

The results of the discriminant analyses, with sex as the grouping variable, are summarized in Table 6. Only two standard scores entered the equation. SOST was first to enter with a Wilk's lambda of .96. The next entry, COST, reduced this to .95, not a significant contribution. No more variables entered the equation. Classification results indicated 64.4% correctly classified males and 59.6% correctly classified females, with a total classification score of 61.78%, a moderately high result. This analysis indicated no really clear discriminating variables. A better picture of this was found with the territorial maps of group centroids. Centroids were situated in close proximity to each other, indicating that the functions did not discriminate very well.

Further attempts to find group differences for IQ in adaptive behavior were made using t-tests. Table 7 summarizes these differences. Groups 3 and 4 were the only pair that exhibited no statistically significant differences, using the subdomain and

standard scores as variables. All other pairs were significantly different in performance on one or more of the subdomain/domain scales.

Significant gender differences were found at the .05 level, using t-tests, for the standard scores for all domains except the Motor Domain. This result may be biased, due to the smaller n for the Motor Skills portion of the Vineland. No significant differences were found for subdomain scores. Further investigation of these differences may be warranted.

To investigate predictors of IQ and adaptive behavior, stepwise regression techniques were used, looking only at the two extreme groups (IQ 85-117 and IQ 149-192). When IQ was predicted from the subdomains, for the lower-extreme group, none of the subdomains met the .05-level criterion for entry into the equation. When IQ was predicted from standard scores for this group, COST was the first to enter the equation, with a multiple R of .37, explaining 14% of the variance ($p \leq .0001$). Then SOST entered the equation, increasing the R to .40 and explaining, with COST, 16% of the variance ($p \leq .0001$). The third variable to enter was MOST, which only raised R to .42 and the variance then explained was .17. No more variables were included. When the same analyses were applied to the upper-extreme group, no subdomains met the criteria for entry. Thus, the adaptive characteristics measured by the Vineland cannot be said to be discriminating with regard to IQ for highly gifted children. Again, the analyses appear to support the theory that IQ and adaptive behavior are distinct constructs. When the analysis was tried with the standard scores for this group, MOST appeared to have the greatest contribution, with a multiple R of .45, explaining 20% of the variance ($p \leq .01$). COST added .20 to the R, bringing it to .60 and explaining 35% of the variance ($p \leq .001$). No more variables entered this equation.

When adaptive behavior (ADST) was used as the grouping variable for the lower-extreme group, the strongest subdomain predictor was SOCS, with a multiple R of .42, explaining 17% of the variance ($p \leq .05$). Next entered COWR, which increased the R to .65 and increased the explained variance to 43% ($p \leq .01$). No more variables entered this equation. It is consistent with expectations that "coping skills" would predict adaptive behavior, as well as the ability to communicate through writing. Looking at the standard scores for this group, SOST was the strongest predictor (R=.81, variance explained=66%), followed by COST (R=.89, variance explained=.80). DAST was the last variable to enter (R=.94, variance explained=.89). These were all significant at the .0001 level. No more variables were found to predict this construct for this IQ group.

For the high-ability group, adaptive behavior was predicted only by MOF (R=.42, explained variance=17%), not a strong predictor,

but the only one from the subdomains. Upon examination of the standard scores, it was found that all were predictive of adaptive behavior for the high ability group, predicting collectively 98% of the variance in scores. This is as we would expect, since they are components of the adaptive behavior score.

For both extremes of this sample, very little was found in the adaptive behavior components to predict IQ. This is consistent with findings from the correlations, cited earlier, and with studies comparing lower ability groups (Ilmer, Bruininks & Hill, 1988), and with Keith et al.'s study (1987).

DISCUSSION

In a multi-faceted assessment effort, the goal is to provide as complete a picture as possible of the individual's functioning to meet the unique needs of the child. "Assessment of adaptive behavior has the potential: (a) to provide a more complete description of student behavior, (b) to yield data that are complementary to those of traditional IQ tests, (c) to help make distinctions between students who are deficient in both scholastic ability and nonacademic functional skills and those who are deficient in only one area, and (d) to suggest differential intervention strategies for such students." (Terrasi & Airasian, 1989, p. 207).

This study suggests that adaptive behavior and IQ are distinct from each other and may be considered unique variables. This means they provide us with different information and may be equally important in assessment of children of all abilities. It may offer, for instance, the chance for an ethnically diverse child, who may score low on traditional English-language IQ tests, but high on adaptive behavior tests, to be included in special programming for gifted children. High adaptive behavior performance may, in fact, be evidence of an intelligence not tapped by more traditional measures.

The analyses conducted herein also suggest that the adaptive behavior of highly gifted children may be different from that of other children. Adaptive behavior correlates moderately with IQ for this group, but not significantly for the other groups. It may be that adaptive behavior is, in part, a function of motivation. Perhaps the person with extremely high intelligence, as measured by traditional measures, has a keener sense of what is necessary for problem-solving, both for himself/herself and for society. Thus, high adaptive behavior would come more easily for this person. For the person with "average IQ", the motivation for adaptation may be more social -- to fit into, or "move within", society, or to act according to what is expected.

This would not necessarily be reflected in higher performance on a traditional intelligence test. In other words, this person may score highly on adaptive behavior, but not on intelligence.

Another observation coming from the data is that for the extremely high IQ group, there is a moderately strong association between adaptive behavior and motor skills. For the lower IQ groups, the association is strongest with the socialization domain. Caution must be exercised in drawing conclusions from this, however, since the Motor Skills Domain of the Vineland is administered to only children who are under six years of age, or to motor-delayed individuals. These findings may be biased, due to the smaller n for these people in this study.

The regression analyses and the discriminant analyses described in this study further support the finding that adaptive behavior may be a separate, though related, construct from IQ. There was very little in adaptive behavior subdomain scores that could be said to be predictive of IQ. It may be said, then, that measures of adaptive behavior merit inclusion in the assessment profiles of potentially-identified gifted children, along with other more traditional measures.

Refinement of instruments should perhaps be on-going to provide the most reliable and valid instruments for measuring this construct. More research also may be warranted (1) to examine the factor structure of adaptive behavior in gifted children compared with average-ability children, (2) to investigate the role of motivation in adaptive behavior and academic success, and (3) to examine more fully any gender differences with this construct. The ultimate goal is to understand the child's full range of abilities, and to help him or her reach full potential.

TABLE 1

Abbreviations Used with the Adaptive Behavior Study

Abbreviation	Explanation
CA	Chronological Age
STMA	Stanford-Binet L-M Mental Age
STIQ	Stanford-Binet L-M IQ Score
SEX	Subject's gender
(Communication Domain)	
CORE	"Communication-Receptive" Subdomain
COEX	"Communication-Expressive" Subdomain
COWR	"Communication-Written" Subdomain
(Daily Living Skills Domain)	
DAPE	"Daily Living-Personal" Subdomain
DADO	"Daily Living-Domestic" Subdomain
DACO	"Daily Living-Community" Subdomain
(Socialization Domain)	
SOIR	"Socialization-Interpersonal Relationships" Subdomain
SOPL	"Socialization-Planning and Leisure" Subdomain
SOCS	"Socialization-Coping Skills" Subdomain
(Motor Skills Domain)	
MOF	"Motor Skills-Fine" Subdomain
MOG	"Motor Skills-Gross" Subdomain
(Standard Scores)	
COST	Communication Standard Score
DAST	Daily Living Standard Score
SOST	Socialization Standard Score
MOST	Motor Skills Standard Score
ADST	Adaptive Behavior Standard Score

TABLE 2

Description of IQ Groups

GROUP	IQ	% SAMPLE	M STMA	M IQ	M ADST
1	85-116	13%	7.26	108	114.04
2	117-132	26%	8.61	125	118.55
3	133-148	29%	7.97	139	113.92
4	149-192	20%	9.14	157	128.68

TABLE 3

Pearson Correlation Coefficients between STIQ/ADST and Vineland Subdomain and Standard Scores

	IQ=85-116		IQ=117-132		IQ=133-148		IQ=149-192	
	STIQ	ADST	STIQ	ADST	STIQ	ADST	STIQ	ADST
CORE	-.14	.03	.16	.26	-.09	-.15	.14	.39*
COEX	-.27	.04	-.06	-.12	.21	.03	-.17	.17
COWR	-.34	-.22	-.19	.08	.18	-.13	-.07	-.05
DAPE	-.22	.08	-.16	.09	.14	.07	-.09	-.08
DADO	-.35	.17	-.16	.22	.01	.11	-.24	-.10
DACO	-.36	.08	-.22	.22	.19	-.09	-.15	.02
SOIR	-.31	.21	-.04	.35*	.31*	-.15	-.16	.09
SOPL	-.28	.15	-.06	.30*	.09	.13	-.17	.12
SOCS	-.17	.42*	.11	.39**	.27*	.34*	-.06	.39*
MOF	-.61*	.40	-.04	-.28	.20	.28	.16	.52**
MOG	.23	.37	-.16	-.04	.07	.13	.12	.40*
COST	-.06	.66**	-.07	.66**	.09	.62**	.44**	.72**
DAST	-.09	.86**	-.09	.81**	.08	.77**	.25	.72**
SOST	-.02	.88**	.23	.75**	.17	.77**	.26	.83**
MOST	-.64**	.47	.23	.02	.06	.77**	.48*	.61**
ADST	-.12	--	-.03	--	.18	--	.45**	--

* sig at ≤ .05 ** sig at ≤ .01

TABLE 4

Means and Standard Deviations of Subdomain Scores of the Vineland by IQ Groups

		CORE		COEX		COWR	
	IQ	Means	SD	Means	SD	Means	SD
	1	26.20	4.31	56.21	4.14	16.79	12.19
Communication	2	25.56	0.76	57.98	3.96	20.46	12.94
Subscales	3	25.88	1.42	57.57	2.99	17.00	11.28
	4	25.76	0.59	57.63	2.89	19.18	12.62
		DAPE		DADO		DACO	
	1	67.46	8.34	19.71	7.18	28.13	13.74
Daily Living	2	69.46	6.61	20.86	6.02	31.12	11.02
Subscales	3	66.73	5.98	19.38	9.86	27.16	9.27
	4	66.16	8.40	17.89	7.18	28.53	10.67
		SOIR		SOPL		SOCS	
	1	40.67	6.79	26.13	5.71	22.13	8.62
Socialization	2	43.34	3.50	26.70	4.28	24.68	6.96
Subscales	3	42.09	3.68	26.48	3.51	25.27	5.73
	4	42.26	4.00	26.26	4.15	25.47	6.93
		MOF		MOG		TOTAL	
	1	18.00	14.58	22.58	18.25	344.00	44.36
Motor	2	10.50	14.84	12.86	18.13	343.20	40.64
Subscales &	3	20.00	14.59	24.43	17.70	351.98	33.43
Total	4	20.37	14.21	24.97	17.28	354.89	36.25
		COST		DAST		SOST	
	1	111.71	15.32	112.79	18.05	109.42	22.35
Standard	2	115.26	10.53	113.62	12.55	112.50	15.19
Scores	3	126.23	11.25	120.48	14.42	126.11	16.87
	4	126.92	12.31	119.00	10.85	123.58	15.42
		MOST		ADST			
	1	84.83	84.15	114.04	18.62		
Standard	2	51.90	80.41	116.18	21.06		
Scores	3	75.27	55.33	124.86	28.45		
	4	75.18	55.50	125.29	23.80		

TABLE 5

Discriminant Analysis Results Using IQ as the Grouping Variable

Standardized Canonical Discriminant Function Coefficients

	Function 1	Function 2	Function 3
CORE	-0.12532	-0.52691	-0.06916
COEX	-0.16151	0.78750	0.20157
DAPE	0.71969	-0.15621	0.40154
DADO	0.26105	-0.28207	1.24112
DACO	0.34177	-0.40666	-1.81381
SOIR	0.46811	0.56797	0.25059
SOCS	-0.42184	0.52817	0.25059
TOTAL	-1.00730	-0.35721	-0.08460

Canonical Discriminant Functions evaluated at Group Means (Centroids)

Group	Function 1	Function 2	Function 3
1	0.12225	-0.75931	-0.04284
2	0.57409	0.18822	-0.02103
3	-0.28394	0.06511	0.21811
4	-0.41415	0.13596	-0.26670

Standardized Canonical Discriminant Function Coefficients

	Function 1	Function 2	Function 3
COST	0.75163	0.09957	-0.76412
SOST	0.49444	-0.27950	1.00261
MOST	-0.20887	1.06228	-0.04557

Canonical Discriminant Functions Evaluated at Group Means (Centroids)

Group	Function 1	Function 2	Function 3
1	-0.91636	0.31806	0.01532
2	-0.50211	-0.21634	-0.00777
3	0.51318	0.01524	0.07839
4	0.48315	0.06131	-0.11497

Table 6

Discriminant Analaysis Results Using Sex as the Grouping Variable

Standardized Canonical Discriminant Function Coefficients

	Function 1
CORE	0.01007
COEX	0.56425
COWR	1.86034
DAPE	1.65823
DADO	1.11751
DACO	-0.08285
SOIR	1.37347
SOPL	0.05264
SOCS	0.99564
MOF	1.78437
MOG	2.83889
TOTAL	-4.92978

Canonical Discriminant Functions Evaluated at Group Means (Centroids)

Group	Function 1
1	0.30518
2	-0.25530

Standardized Canonical Discriminant Function Coefficients

	Function 1
COST	0.55898
SOST	0.59034

Canonical Discriminant Functions Evaluated at Group Means (Centroids)

Group	Function 1
1	0.24101
2	-0.20161

TABLE 7

Group Differences in Domain/Subdomain Scores
(t-Test Results)

Groups	IQ=85-115 1	IQ=116-132 2	IQ=133-148 3	IQ=149-192 4
1	--	SOIR $\leq .08$	COST $\leq .001$ DAST $\leq .05$ SOST $\leq .01$ ADST $\leq .001$	COST $\leq .001$ SOST $\leq .01$ ADST $\leq .01$
2	--	--	DAPE $\leq .05$ DACO $\leq .05$ COST $\leq .001$ DAST $\leq .001$ SOST $\leq .001$ ADST $\leq .001$	DAPE $\leq .05$ DADO $\leq .05$ MOG $\leq .05$ COST $\leq .001$ DAST $\leq .01$ SOST $\leq .001$ ADST $\leq .001$
3	--	--	--	no sig diff

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